

## **Abstract of the Disclosure**

A method for fabricating a MTJ cell of a magnetic random access memory (MRAM) using a semiconductor film as a  
5 tunnel barrier layer is disclosed. The method comprises the steps of: forming a pinned ferromagnetic layer on a connection layer; forming a tunnel barrier layer using a semiconductor film on the pinned ferromagnetic layer; and forming a free ferromagnetic layer on the tunnel barrier  
10 layer.